AN EXPLORATORY ANALYSIS OF MORTALITY AMONG EMPLOYEES OF CANADA WIRE AND CABLE LIMITED TORONTO, ONTARIO

MURRAY M. FINKELSTEIN PHD, MDCM
HEALTH STUDIES SERVICE
ONTARIO MINISTRY OF LABOUR

JANUARY, 1989

SUMMARY

In February, 1988 the Minister of Labour received a letter, from the Coordinator for Occupational Health and Safety for District 6 of the United Steelworkers of America, in which the concern was expressed that cancer deaths at Canada Wire and Cable Limited in Etobicoke had been caused by exposure to toxic substances in the workplace. The Ministry of Labour was asked to investigate the situation.

On May 26, 1988 representatives of the Industrial Health and Safety Branch and the Health Studies Service of the Ministry met with the Joint Health and Safety Committee at the plant. The author pointed out that there would be considerable difficulty in determining whether a problem existed in the factory because of: (1) the relatively brief existence of the plant in relation to the 20 or more years it usually takes an occupationally-induced cancer to express itself; and, (2) the small size of the workforce which would make it difficult to identify a workplace problem "above the statistical noise".

It was proposed to adopt an approach similar to the one employed to investigate comparable concerns at Slater Steels in Hamilton, namely a study of the causes of death among workers identified as deceased in Company files. It was agreed by those present at the meeting that this approach would be adopted, and the Personnel Department was asked to prepare a list of retirees and deceased employees.

A list of 46 names was received from the Personnel Department in July, 1988 and work histories were received in November, 1988. This list included the names of 34 living hourly retirees, 8 deceased hourly retirees, 2 deceased hourly workers who had died prior to retirement, and 2 deceased salaried workers. Statistical analysis found that life expectancy following retirement was similar to the Ontario average. Four of the retirees had died from cancer, in comparison to the 2 deaths that one would expect to see in the average Ontario group of 42

men. No type of cancer occurred more than once and no Department employed more than one man who died from cancer for longer than 3 years.

As anticipated, the results are inconclusive because of the small number of retirees. Although more deaths occurred from cancer than the Ontario average, the numbers were so small that this could easily have been a statistical fluke (in any group of 42 men there is a 15% chance of observing 4 or more cases of cancer when only 2.06 are expected). In addition, occupational exposures generally lead to specific types of cancer, but no type of cancer occurred more than once among the retirees, nor was there any clustering of cancer deaths among any of the Departments.

The Steelworkers' list contained the names of men who, for the most part, had died prior to retirement. Most of these men were identified as having worked in the Braiding Department, and 3 of the deaths were from lung cancer. Asbestos had been used in the Braiding process, and it is conceivable that there could be an occupational connection. Since the size of the workforce that had been employed in Braiding is unknown, it is impossible to say whether 3 deaths from lung cancer is a larger number than the Ontario average. There were, however, no deaths among the retirees who had worked in the Braiding Department.

The author suspects that it will not be possible to give a definitive answer to the question of cancer risk at Canada Wire and Cable because of the small size of the workforce. It is my impression, based on a walkthrough of the plant and the results of the exploratory analysis, that no major hazard exists. It is doubtful that any further study will provide better information.

The major unresolved question is that of cancer risk among younger men. The majority of the men on the Steelworker's list died prior to retirement and a recent Ministry of Labour study found that the lung cancer risk in a Hamilton steel plant occurred primarily among men who died before retirement. It is thus recommended that the Joint Health and Safety Committee

consider the feasibility of compiling a complete list of employees, from Company records and Union Seniority lists, so that the possibility of assessment of the risk of cancer prior to retirement might be further explored.

INTRODUCTION

In February, 1988 the Minister of Labour received a letter from Mr. Norman Carriere, the Coordinator for Occupational Health and Safety for District 6 of the United Steelworkers of America. In his letter Mr. Carriere reported that the workers at the Canada Wire and Cable plant in Etobicoke had, over a 9 year period, noted 9 deaths from cancer among fellow employees. The Union expressed concern that these deaths were caused by exposure to toxic substances, such as methylene chloride, in the workplace and the Ministry of Labour was asked to investigate the situation.

On May 26, 1988 representatives of the Industrial Health and Safety Branch and the Health Studies Service of the Ministry met with the Joint Health and Safety Committee at the plant. It was determined that the plant, formerly known as Industrial Wire and Cable, had been in existence at the Index Road site since 1955. The company manufactures electrical wire and cable. Raw wire (aluminum and copper) is received in rolls and is drawn to the appropriate diameter through a series of dies. Oil and water based lubricants are used in this process. The wires are coated with insulators and then packaged for shipping. In the past, asbestos was used in certain braiding processes, but its use was discontinued in the late 1960s and braiding is no longer carried out at this plant, but goes on at a sister plant known as Bilt-Rite. Other materials in use at Index Road have included steel wire and strip, polyvinyl chloride, polyethylene, inks and tar compound.

The Company has approximately 135 hourly employees at present, a number down from the total of 265 several years ago. Turnover at the plant is low, with the minimum seniority about 10 years. The Company has a pension plan and there are 1 or 2 retirees each year.

A discussion was held of the approaches that might be adopted to investigate the cancer concerns. The author pointed

out that there would be considerable difficulty in determining whether a problem existed because of (1) the relatively brief existence of the plant in relation to the 20 or more years it usually takes an occupationally-induced cancer to express itself; and, (2) the small size of the workforce which would make it difficult to identify a workplace problem "above the statistical noise".

It was proposed by the Ministry to adopt an approach similar to the one employed to investigate similar concerns at Slater Steels in Hamilton, namely a study of the causes of death among workers identified as deceased in Company files. This method would be useful as a first approach because such employees would be expected to have had relatively lengthy periods of employment at the plant and because the difficulty and delay of tracing workers who had left without a pension would be avoided, permitting a relatively quick first look at the situation. The price to be paid for this approach is that employees who left the company prior to retirement would not be included in this analysis.

It was agreed by those present at the meeting that this approach would be adopted, and the Personnel Department was asked to prepare a list of retirees and deceased employees.

Results and Analysis

A list of 46 names was received from the Personnel Department in July, 1988. This list included the names of 34 living hourly retirees, 8 deceased hourly retirees, 2 deceased hourly workers who had died prior to retirement, and 2 deceased salaried workers. The names of the deceased workers from the Company and Union lists are given in Table 1.

Two of the 9 names on the Steelworkers list appeared on the list received from the Company. Death certificates were located for 5 of the remaining 7. Three had died from lung cancer, 1 from stomach cancer and one from pancreas cancer. Their ages were 46, 47, 57, 58, and 72 years.

1) Causes of Death in Comparison with the Ontario Average

Life expectancy among the retirees was similar to the Ontario average. From the dates of retirement until July, 1988, 8 deaths occurred among the 42 retirees, not noticeably different from the average of 7.43 deaths that one would expect to find among groups of 42 Ontario men of the same ages. Four deaths were attributed to cancer; one each from lung, pancreas, kidney, and leukemia. The average number of cancer deaths in groups of 42 Ontario men would be 2.06. There were 4 deaths from circulatory diseases (all heart attacks) where the average among groups of 42 Ontario men would be 3.78 from circulatory causes. Detailed results are presented in Table 2.

Two of the deceased individuals on the list had not yet retired, and so they could not be included in the previous calculation. One of them had died from brain cancer, the other from a heart attack. Of the total of 10 deaths notified by the Company, five were thus from cancer and 5 were from heart disease. Ontario averages would predict about 3 deaths from cancer and 5 deaths from circulatory diseases in a group of 10 deaths among men of these ages. Detailed results are presented

in Table 3.

2) Causes of Death in Association With Work Department

Work histories, for the individuals on the list, were received from the Personnel Department in November, 1988. The men who died of cancer had worked in one or more of 4 Departments at the plant; NiSil and NiSil Packaging, Packaging, and Stranding. The employment details follow:

Worker	Tumour	Years in:		
		Stranding	NiSil(All)	Packaging
1	Kidney	0.2	12.1	0
2	Lung	22.1	0	0
3	Pancreas	0	0	21.2
4	Leukemia	0	26.8	2.4

No Department had employed more than one of the workers with cancer for more than 3 years. The man who died from kidney cancer had worked in NiSil Packaging, while the man who died from leukemia had worked in the NiSil Department. Most of the men on the Steelworker's list had worked in the braiding Department. There were no deaths among the 9 men on the Company list who had worked in braiding for more than 3 years; 2 deaths would have been expected in this group according to the Ontario averages. Detailed results are given in Table 4.

3) Discussion

A list of 42 retirees was provided by the Personnel Department. Life expectancy following retirement was similar to the Ontario average. Four of the retirees died from cancer, in

comparison to the 2 deaths that one would expect to see in the average Ontario group of 42 men. No type of cancer occurred more than once and no Department employed more than one man who died from cancer for longer than 3 years.

As anticipated, the results are inconclusive because of the small number of retirees. Although more deaths occurred from cancer than the Ontario average, the numbers were so small that this could easily have been a statistical fluke (in any group of 42 men there is a 15% chance of observing 4 or more cases of cancer when only 2.06 are expected). In addition, occupational exposures generally lead to specific types of cancer. Asbestos, for example, is associated with lung cancer while vinyl chloride is associated with liver cancer. No type of cancer occurred more than once among the retirees, nor was there any clustering of cancer deaths among any of the Departments. In conclusion, there is no compelling evidence of any occupational cancer hazard among retirees.

The Steelworkers' list contained the names of men who, for the most part, had died prior to retirement. Most of these men were identified as having worked in the Braiding Department, and 3 of the deaths were from lung cancer. Asbestos had been used in the Braiding process, and it is conceivable that there could be an occupational connection. Since the size of the workforce that had been employed in Braiding is unknown, it is impossible to say whether 3 deaths from lung cancer is a larger number than the Ontario average. For comparison, there were no deaths from any cause among the retirees who had worked in the Braiding Department.

The author suspects that it will not be possible to give a definitive answer to the question of cancer risk at Canada Wire and Cable because of the small size of the workforce. It is my impression, based on a walkthrough of the plant and the results of the exploratory analysis, that no major hazard exists. It is doubtful that any further study will provide better information.

The major unresolved question is that of cancer risk among

younger men. The majority of the men on the Steelworker's list died prior to retirement and a recent Ministry of Labour study found that the lung cancer risk in a Hamilton steel plant occurred primarily among men who died before retirement. It is thus recommended that the Joint Health and Safety Committee consider the feasibility of compiling a complete list of employees, from Company records and Union Seniority lists, so that the possibility of assessment of the risk of cancer prior to retirement might be further explored.

Table 1: The Workers on the Company and Union Lists

A: Deceased Retirees on Company List

Altberg, L
Caruana, J*
Jaskielewicz, W
Over, W
Porter, G
Stevik, S
Szegvary, J
Viragh, J

B: Deceased Pre-retirees on Company List

Garofalo, J
Quirk, A*

C: Names on Union List

		Death Certificate Information	
Billard, Les	1984?	Died June, 1985	Age 57
Caruana, J*			
Grofsics, John	1980	Died August, 1980	Age 46
Jasinsky, Adam	1979?	Died February, 1982	Age 72
Quirk, A*			
Szalics, Joseph	1980	Died August, 1980	Age 58
Trattiani, Fred	----	Couldn't Locate	
Trivanovic, Steve	1976?	Died May, 1980	Age 47
Zunderburgh, Bob			

Table 2: Deaths Following Retirement In Relation to Time Since Hire

Cause of Death (ICD Code)	Time Since Hire (Years)								
	10 - 19			20 or More			Total: 10 or More		
	OBS	EXP	SMR	OBS	EXP	SMR	OBS	EXP	SMR
All Causes	2	2.96	68	6	4.47	134	8	7.43	108
Malignant Neoplasms	1	0.82	122	3	1.24	242	4	2.06	194
Lung (162-63)	0	0.29	0	1	0.44	228	1	0.73	137
Digestive (150-59)	0	0.25	0	1	0.38	263	1	0.63	159
Blood and Lymphatics(200-209)	0	0.06	0	1	0.10	1029	1	0.16	621
Kidney (189)	1	0.02	6100	0	0.02	0	1	0.04	2400
Circulatory System	1	1.51	66	3	2.27	132	4	3.78	106
Heart Disease (410-414)	1	1.08	93	3	1.62	185	4	2.70	148
Cerebrovascular (430-438)	0	0.21	0	0	0.31	0	0	0.52	0

NOTES: OBS = Number of deaths which occurred
EXP = The number that would be expected in an average Ontario group of men
SMR = OBS /EXP x 100 = Percentage of expectation that actually occurred

Table 3: Proportional Mortality Analysis of 10 Deaths Occurring 10 or More Years After Hire

Cause of Death	OBS	EXP	PMR
Malignant Neoplasms	5	2.81	178
Circulatory System	5	5.00	100
Heart Disease	5	3.62	138

NOTES: OBS = Number of deaths which occurred

EXP = The number that would be expected in an average Ontario group of men

PMR = OBS /EXP x 100 = Percentage of expectation that actually occurred

Table 4: Analysis of Mortality By Department

Department and Cause of Death	Years in Department					
	Less than 3			3 or More		
	OBS	EXP	SMR	OBS	EXP	SMR
1) NiSil						
All Causes	6	6.25	96	2	1.28	156
Malignant Neoplasms	2	1.74	115	2	0.34	589
2) Packaging						
All Causes	7	6.78	103	1	0.75	133
Malignant Neoplasms	3	1.88	160	1	0.21	482
3) Stranding						
All Causes	7	6.83	102	1	0.70	143
Malignant Neoplasms	3	1.89	159	1	0.20	506
4) Braiding						
All Causes	8	5.55	144	0	1.98	0
Malignant Neoplasms	4	1.55	259	0	0.54	0

Department	Number Employed More Than 3 Yrs	Number Employed Less Than 3 Yrs
Braiding	9	33
NiSil	6	36
Packaging	6	36
Stranding	5	37